Apollo quad copter

User Manual

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Disclaimer

Please read this disclaimer carefully and follow instructions on assembly and calibration contained in this manual. By using our product, you hereby agree to this disclaimer and signify that you have read the entire manual thoroughly.

- THIS PRODUCT IS NOT SUITABLE FOR PERSONS UNDER THE AGE OF 12.
- This product is not a toy! It is a sophisticated product for sports and leisure, and a combination of mechanics, electronics, and aerodynamics and high-frequency radio technologies. The operator should follow instructions and security rules. Proper Installation and test are compulsory to avoid accidents. Inappropriate operation may cause serious damages. We are not responsible for them.

  Idea-Fly takes no responsibility for any direct or indirect damage(s) or injuries caused by improper installation, calibration and operation.
- Idea-Fly takes no responsibility for any direct or indirect damage(s) or injuries caused by installing/calibrating/flying this product when users are in situations including but not limited to under the influence of alcohol, drugs, dizziness, fatigue or any other cases no matter mentally or physically that would impair your ability.
- Idea-Fly takes no responsibility for any direct or indirect damage(s) or injuries caused by flying this product in inappropriate whether like windy(no more than gentle wind), rainy, snow, hail, lightning, earthquake, tsunami and other natural

disasters.

- Idea-Fly takes no responsibility for any direct or indirect damage(s) or injuries caused by using this product in inappropriate area like magnetic or radio interference area, government regulated no-fly zone or any other not permitted public or private areas.
- Idea-Fly takes no responsibility for any direct or indirect damage(s) or injuries caused by using Idea-Fly product assembled any other non-original Idea-Fly parts, uncompleted Idea-Fly product and Idea-Fly product in aging or erosion conditions.
- If any questions or problems occurred before, during, after using Idea-Fly products, please contact local distributor/seller or Idea-Fly customer service for answer or assistance. Idea-Fly takes no responsibility for any direct or indirect damage(s) or injuries caused by customer’ s improper operation or subjective misjudgment.
- Any other losses that are not under Idea-Fly’ s liability.
- Please use it in the field approved by local government, laws or regulations.
- We are not responsible for any civil or criminal liabilities caused by improper operation or illegal usage.
- If you have questions about usage, operation, maintenance or any other issues, please contact local distributors.

Preface

Dear Customers:

Thanks for buying Idea-Fly Model airplane, to learn to operate the model faster and safely, please read the Manual carefully, and please keep the Manual for further reference in the near future.

The quad is equipped with high-performance electronic flight controller, foldable fuselage, highly-efficient brushless motors and high-speed, silent motor governor. High-capacity Li-Poly battery supplies quite good payload ability. Additional high-performance camera mount supplies ability of aerial video and photography with camera or DV.

The quad mainly adopt the carbon fiber as material ,and mixed with some high-strength engineering plastics, which reduces weight and cost effectively, make your flight fulfill with much more fun.

FEATURES

- Install Dry Battery Cell and Ready To Fly
- Cool Appearance And Convenient For Carrying
- Precise Hovering and Self-leveling with GPS
- Two-Axis Stabilization Gimbal
- Highlighted LED Indicator
- Low Noise and High Performance Brushless Motor
- Fail-Safe Mode
- Low Voltage Protection
- Integrated 5.8G Wireless Image Technology, camera & record module （for C version）

OVERIVEW

Apollo is a RTF quad-rotor designed for sports video hobbyists, It is a AIO design small quad copter (350mm size) with integrated flight control system including GPS and Wireless Image Transmission System which provides precise Position Hold, Fail Safe and Semi-autopilot, equipped with high performance brushless motor, ESC and carbon fiber propellers. All preparation before flight is to install dry cell (AA*8) for transmitter. In addition to perfect match for sports video devices such as Gopro, its built-in 1080P HD tiny camera can also bring excellent FPV vision. Apollo is set to be one of the best suites for sports video.

- Newest IFLY-C6W controller
- GPS and Compass
- Low noise ESC
- Highly efficient brushless motor
- 5V/3AUBEC and highlight LED pilot lights
- USB debug interface
- Auto-balanced, GPS hover and RTH & landing 3 types of flight mode.
- Failsafe – Control loss, auto return to home
- Low voltage auto landing
- 2 axis camera mount
- 5.8G wireless video transmitter, mini camera& record module （for C version）

Transmitter

Transmitter requires batteries (purchased separately), please install before set-up.

A 6 channel transmitter is used to control Roll(CH1), Pitch(CH2), Elevator(CH3), Rudder(CH4), flight mode(CH5), Headfree & Gimbal(CH6).

Power supply

- **Please note** that the Apollo can only use **2200mah/3s** battery，other size batteries can’ t be mounted in the body.
- Please turn on the transmitter before connecting the battery.
- **After connect the battery, the quad requires a 10 second resetting sequence, please keep the quad copter still during this time.**

Starting Up

Pushing the throttle stick will not start the motors, to start the quad you need to carry out the following steps:

The detailed CSC operation is: push the RUD stick to the left, pull the ELE stick to the bottom, push the AIL stick to the right.

- For the layout with the right RUD, that is mode 3 and mode 4, you need to use the V operation (as the left picture show).
- For the layout with the left RUD, that is mode 1 and mode 2, you need to use the inverted V operation (as the right picture show).
- After the CSC (combined stick command) operation, you need to push the THR stick a little to turn the motors on. If you do not take off the aircraft, some kind of motors will reduce speed, even shut down. It is a normal event. You can push the stick to a far position and then take off it.

  Note: the motors will be shut down if you do not push the stick in 5 seconds after doing the CSC. You need to redo the CSC to arm the motors.

Shut down

Activate the stabilization mode (set CH5 to 0), and pull the THR stick to the bottom, then the motors will be unarmed after 3 seconds.

But in GPS mode, the motors will not stop immediately when the THR stick is at the bottom, they will reduce the turning speed to reduce the altitude first. You had better to activate the stabilization mode when the craft has been landed. And you need to keep the THR stick at the bottom for a while, then the motors will stop and unarm after that (In GPS mode, set the CH5 to 0 after the copter landing, then the motor will be unarmed).

Compass calibration

Calibrate the compass before the first flight or when flying in a different area. Make sure to keep away from ferromagnetic substance and other electronic equipment when calibrating or flying. If you keep having calibration failure, it might suggest that there is magnetic interference or other ferromagnetic substance, please avoid flying in this area

When do you need calibrate the Compass?

- First time when you are using the quad copter and the GPS

Please note - Do not calibrate the compass in a ferromagnetic environment.

When calibrate the compass, please move the quad copter await from electromagnetic magnetic equipment such as key, cell-phone, and other metal

objects *(Best to calibrate in an open area or middle of a room etc)*

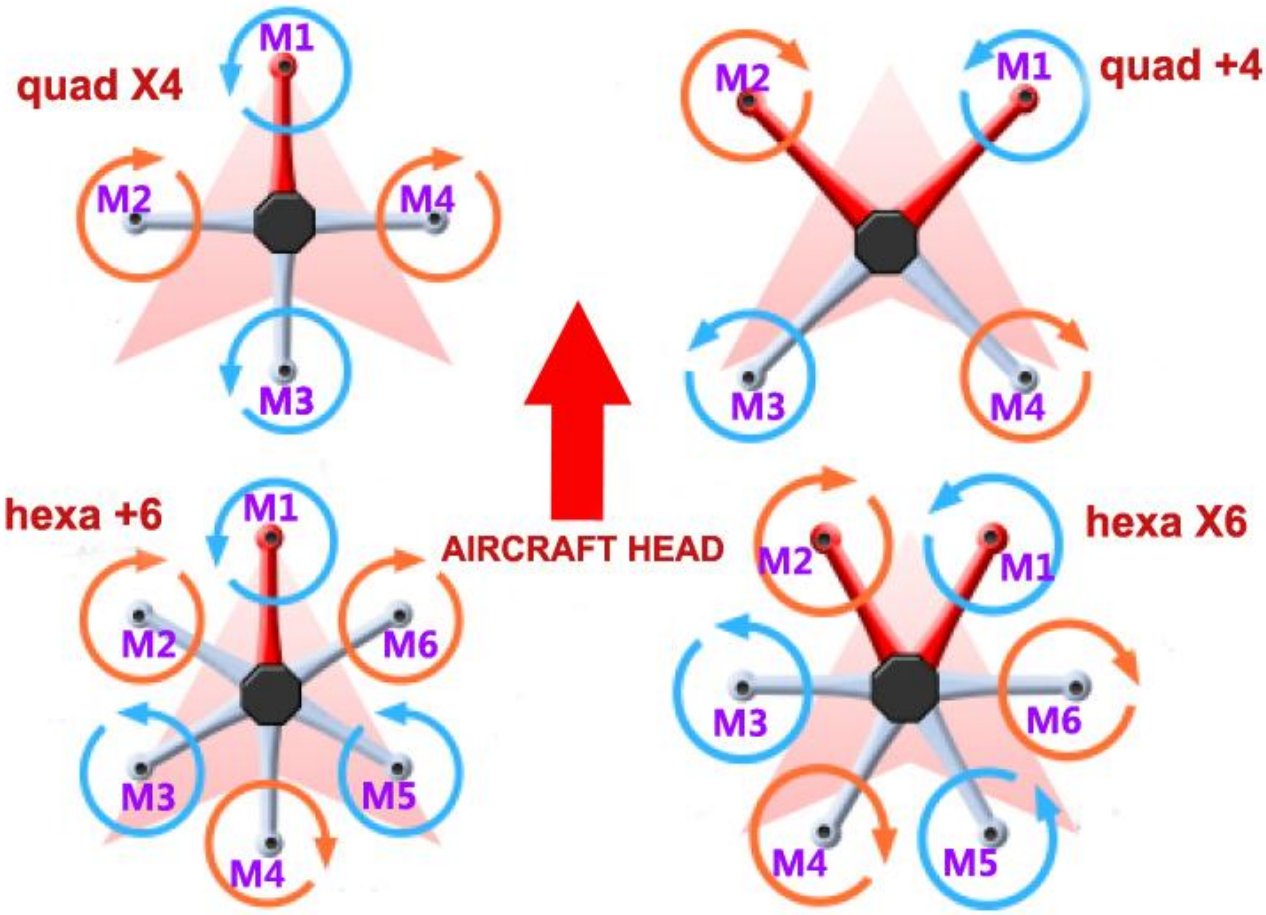
Please refer to the IFLY-C6W manual.

Propeller installation and rotating direction

Please install the propellers as illustrated in the following diagram, if incorrectly installed the quad copter will not operate as designed and may be damaged

.

Propeller rotating direction and the direction of the ESC:



Before first flight

Ready to fly

1. Put the quad on the ground, turn on the transmitter first, then connect the battery.
2. Please keep the quad still for at least 10 seconds.
3. Please notice which flight mode is selected, you must start up the quad in balance mode. (Take WFT07A transmitter for example, if the Che5 is not at position 0 manual stabilization, the copter won't start.)
4. After starting the quad copter, increase the throttle slowly.
5. Move all stick's on the transmitter and check if is moving in correlation to the stick movement. (Or you could use IFLY-GCS software to check.)
6. If all stick movements are normal, you can try to flight at low altitude.

Low voltage

1. Make sure for safe flight, we suggest you connect an external voltage alarm on the battery.
2. Please land the quad if the low voltage alarm starts, or it may cause the quad to turn over onto one side and crash.

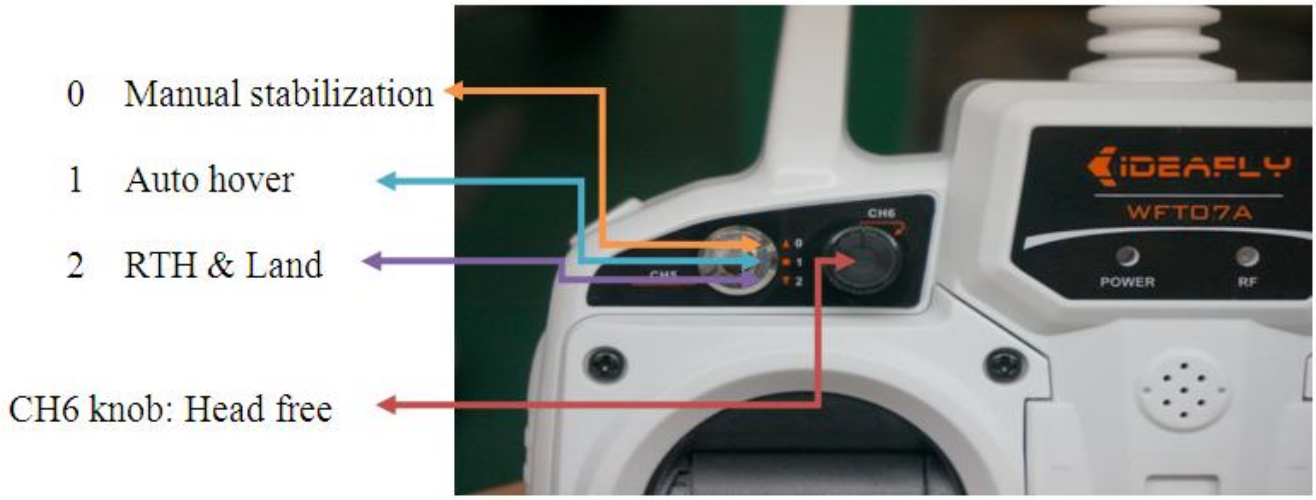
   If the height hold or GPS mode is selected, the quad will reduce the height automatically and land.

Flight mode

Apollo flight modes support ***Manual stabilization, Auto hover, RTH & land***

3 of flight modes can be set to the 3 position switch at one time. The flight modes can be switched with the 3 position switch on the transmitter

CH5 switch	0 position	1 position	2 position
Mode switch	Manual stabilization	Auto hover	RTH & land



Flying Mode and LED

Apollo current status can be recognized by the LED on the bottom of the copter.

Please refer to "IFLY-C6W" manual.

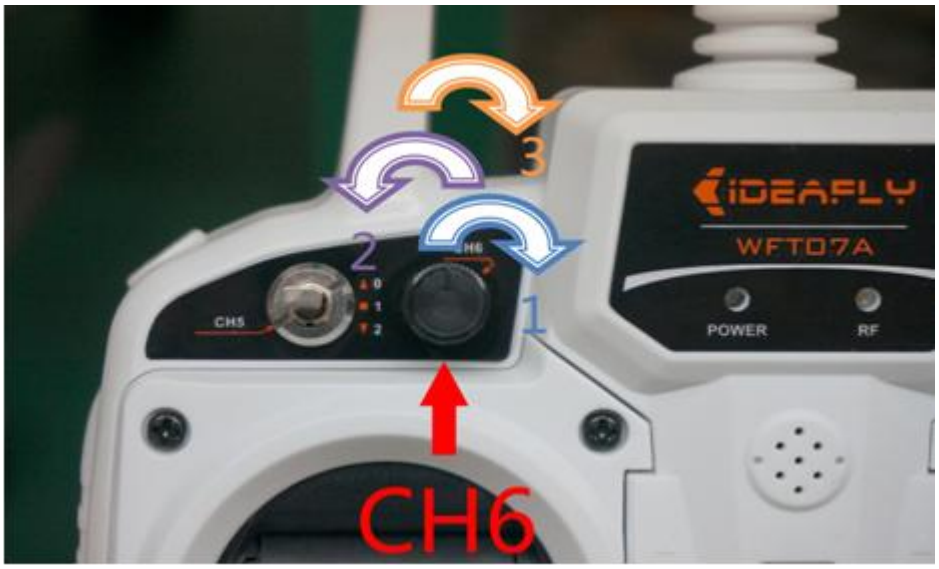
CH6 knob channel

1) Head free mode instruction

When flying with auto hover mode, once the head free mode being active, current aircraft head direction would be defined as the following forward direction.(though the aircraft direction change under head free mode but move forward according to the defined direction)

2) How to activate &deactivate Head free mode

Shown as above : 1. turn the CH6 knob to maximum, 2. then turn the CH6 knob to minimum, 3. then turn the CH6 knob to the maximum again, Head free mode will be active when this three turning operated, the same operation to deactivate the mode.



3) Notice of the CH6 knob

Please note that CH6 knob is not only for the Head free mode activate & deactivate, but also for the camera mount pitch angle control, so it is normal

phenomenon when you are turning for the mode activate or deactivate, the pitch angle will change at the same time, you can adjust the camera mount angel after the activate & deactivate.

Note: Set the transmitter to fixed wing mode, and cancel all the mixing settings in all channels. Cancel all reverse settings in FUTABA transmitter, and reverse all channels in JT and WFLY transmitter.

Failsafe control - Return to home

(Loss of control)

Necessary: You have to do the failsafe setting on the transmitter, then could realize failsafe RTH & land. If your transmitter don't support failsafe setting, or don't support complete failsafe setting (for example, don't support other channels except throttle channel), customers need to pay attention to related safety problems.

Check F/S settings

Set the F/S settings according to your transmitter manual. For IFLY-C6W AP, CH5 set to position 2, CH6 set to position 2 (make the CH6 knob to the max on the right, as the following picture), THR set to position around 50%.

Then check: close the transmitter, and the "flight mode" should be changed to "Return and Land".

The processes of RTH & land are as follows:

1) Suppose the craft is beyond 25 meters away from the home point.
   A. If the current flight altitude is lower 20 meters, the craft will raise to 20 meters altitude first, and then execute the RTL mission later.
   B. If the current flight altitude is higher than 20 meters, then it will try to keep the altitude during the flight to the home point.
2) Suppose the craft is beyond 25 meters away from the home point, then it will try to keep the altitude during the flight to the home point.

We recommend you not to activate the return and land mode when the craft is too close to you, because there is no enough time for the craft to response that any accidence can occur easily.

About the altitude limit and the distance limit

The maximum flight altitude of C6W AP is 100 meters, the maximum flight distance (radius) of C6W AP is 300 meters. No matter in stabilization mode or in GPS mode, the craft will fly to the home point immediately when it reaches the limit line.

Note: after you switch to RTH & land mode, you just could switch to manual stabilization mode, if not, can't stop RTH & land. (If you switch to GPS hover, it won't work, the copter will still return & land.)

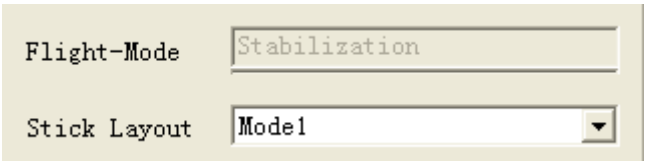
Adjust transmitter

In order to make copter working normally, AP need to know some channels' data of transmitter, for example, the maximum, minimum, neutral value. In some conditions, such as first time to install the AP or change other transmitters, the record data in AP can't be used for new situation, it needs to adjust the transmitter at this time.

The complete adjustment includes three processes: Activate / Deactivate the working mode, Calibrate the reverse setting of the stick channel, Calibrate the neutral position of the switch channels. The AP should connect to computer and make the AP work with receiver successfully when you do these three steps, that is to make the AP could receive and record the channels' data from transmitter.

1) Activate / Deactivate the working mode

Ensure the GPS module has been connected. And check if the changing of the working modes is normal or not.

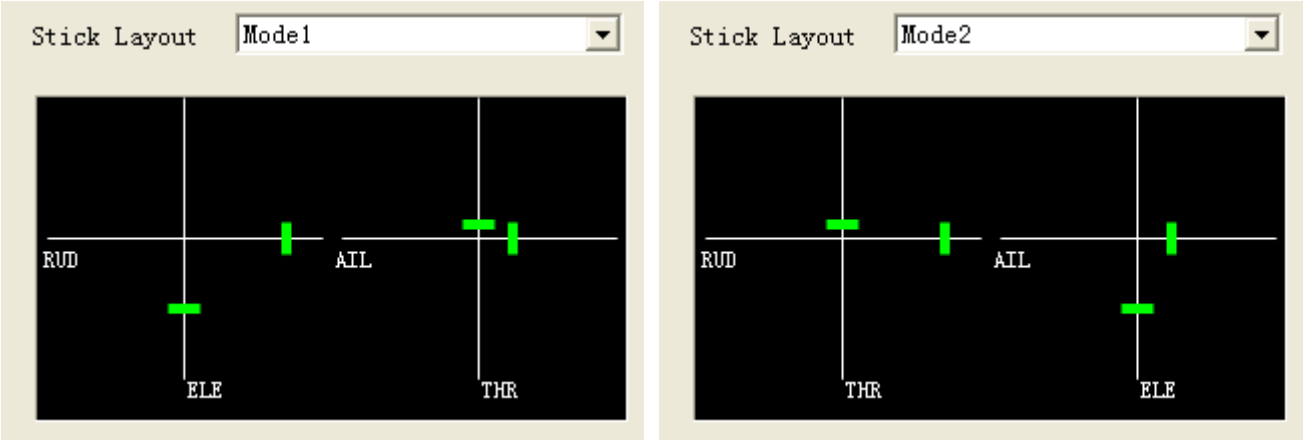


Push the CH5 three position switch , it should switch different working mode in order, 0 position is manual stabilization, 1 position is GPS hover, 2 position is return & land.

For example, when CH5 is at position 0, the flight-mode in the configuration software will show "Stabilization". If not, please check the hardware connection or the transmitter settings.

2) Calibrate the reverse setting of the stick channel

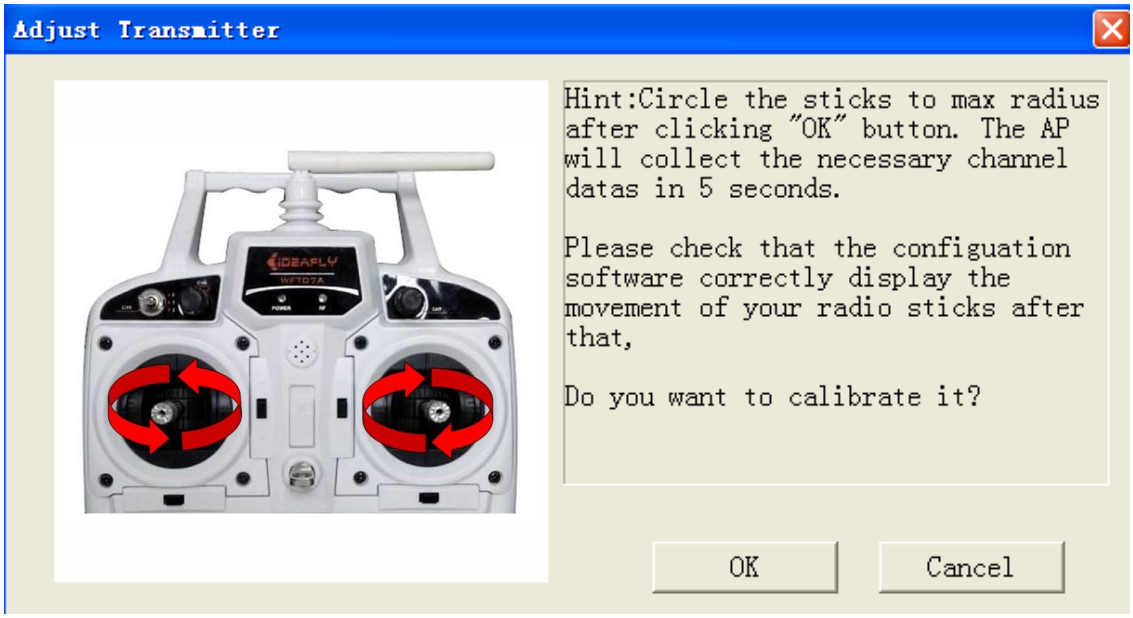
Firstly, select the right stick layout.



Note: the drag-down menu can change the display mode on the screen only, it cannot change any settings in the transmitter and the AP. it is a normal that you need to select "mode X" every time when loading in the configuration software,

Then push the two switches to see if the slider can move in the same way with them or not. If not, then check if the wires order is right or not. Otherwise, check the reverse setting in the related channels in the transmitter.

3) Calibrate the neutral position of the switch channels


Adjust Transmitter
Hint:Circle the sticks to max radius after clicking "OK" button. The AP will collect the necessary channel datas in 5 seconds.
Please check that the configuation software correctly display the movement of your radio sticks after that,
Do you want to calibrate it?
OK
Cancel

Click "Adjust Transmitter" button, and the "adjust Transmitter" window will come out. Read the message in the right part of the window, and click "OK" button. Then follow the picture in the left of the window, circle the two sticks along the biggest radius **in 5 seconds**. The AP will collect the maximum and minimum position value of each channel, and calculate the related neutral value out.

Then back to the main window and check the situation of the four channels in the "stick layout". The related slider of each channel should be green color when it is in the middle position, and be red color in the other positions. Specially, the THR slider should be yellow color when it is in the button, and be blue color when it is in the hover position (normally near the middle position).

Note: we suggest customer uninstall the propellers for safety when adjusting the transmitter at the first time. (In the process of adjusting transmitter, the motor will be unarmed after 5 seconds, the motor will rotate when you push throttle before the motor unarmed.)

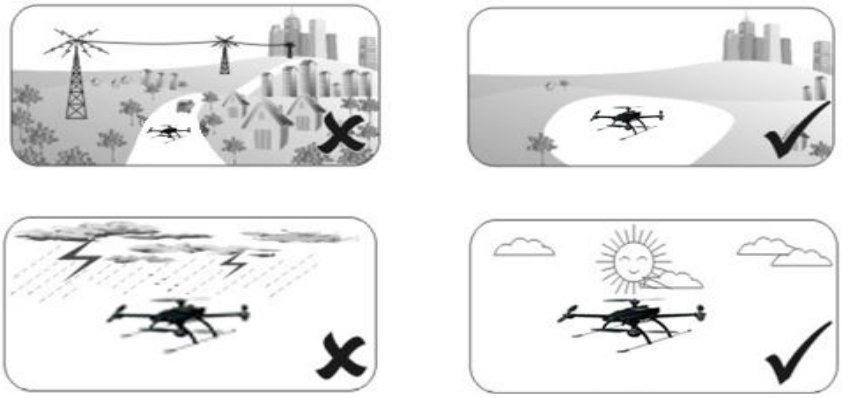
Working Status Check

- Make sure the propellers are installed correctly ,check the stick operation on the ground after connecting the battery (the quad power on)
- Put the quad on the ground (level), put the transmitter aside the quad.
- Power on the quad, press on the quad with left hand《⚠**be safe ! avoid the propeller hurting yourself》push the throttle stick slightly to 20% with your right hand.**
- Push the Pitch, Roll, Rotate (30% throttle value), use the left hand (press on the quad) to feel if the quad will move on the right direction.
- If the direction is wrong, please check that if the propellers are installed correctly, the connecting between receiver and controller are correctly, the direction of the motor rotating is right.
- Catch the bottom of the quad(hold steady)with your left hand (or right hand) lift it front over your head《 **be safe ! avoid the propeller hurting yourself》**
- Start up and push the throttle to 20% value with your right hand (or left hand)
- Feel that if the direction (forward, backward, left, right) will lean, feel that if the quad will stop you lean the quad.
- If the quad don’ t stop you lean the quad, please check that if the propellers are installed correctly, the connecting between receiver and controller are correctly, the direction of the motor rotating is right.
- If all is normal, you can enjoy your first flight.

Warning and Caution

Away from building and people

RC model is dangerous when it is working or flying. Incorrect installation, broken components, malfunction or even slight improper operation may incur serious accident. Users should ensure the safety of the flight and stay away from crowds, taking responsibility for any accidents.



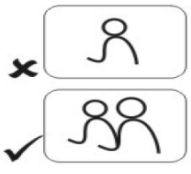
We strongly recommend an at least 100m*100m as flying field without obstacles like crowds, high buildings, high-voltage towers/lines, woods or any other similar objects, to avoid any damage(s) or injuries caused by accidents.

Do Not Fly It Alone

Beginners should be accompanied with experienced pilot.

Do not fly it alone no matter you are experienced or not.

Simulator software for practice is recommended.



Away From Working Parts

Do not touch any part of the working plane, especially the rotating blades.

Away From Exposure to Wet Condition

The plane consists of lots of complicated electronic components, keep it away from exposure to wet conditions. Do not fly it in wet weather like rainy, snow, lightening storm, fog, hail or windy (no more than moderate breeze).

Prevent any wet substances like water or steam from getting into the plane.

Away From Heat or Radiation

Fuselage was made out of ultra-strength plastic, please keep it far away from heat or radiation which may lead to fuselage aging, erosion or even melting.

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